

Confidentiality Requested:

Yes No

**KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION**

Form ACO-1

January 2018

Form must be Typed

Form must be Signed

All blanks must be Filled

**WELL COMPLETION FORM
WELL HISTORY - DESCRIPTION OF WELL & LEASE**

OPERATOR: License # _____

Name: _____

Address 1: _____

Address 2: _____

City: _____ State: _____ Zip: _____ + _____

Contact Person: _____

Phone: (_____) _____

CONTRACTOR: License # _____

Name: _____

Wellsite Geologist: _____

Purchaser: _____

Designate Type of Completion:

New Well Re-Entry Workover

Oil WSW SWD

Gas DH EOR

OG GSW

CM (Coal Bed Methane)

Cathodic Other (Core, Expl., etc.): _____

If Workover/Re-entry: Old Well Info as follows:

Operator: _____

Well Name: _____

Original Comp. Date: _____ Original Total Depth: _____

Deepening Re-perf. Conv. to EOR Conv. to SWD

Plug Back Liner Conv. to GSW Conv. to Producer

Commingled Permit #: _____

Dual Completion Permit #: _____

SWD Permit #: _____

EOR Permit #: _____

GSW Permit #: _____

Spud Date or Date Reached TD Completion Date or Recompletion Date

API No.: _____

Spot Description: _____

_____ - _____ - _____ Sec. _____ Twp. _____ S. R. _____ East West

_____ Feet from North / South Line of Section

_____ Feet from East / West Line of Section

Footages Calculated from Nearest Outside Section Corner:

NE NW SE SW

GPS Location: Lat: _____, Long: _____
(e.g. xx.xxxxx) (e.g. -xxx.xxxxx)

Datum: NAD27 NAD83 WGS84

County: _____

Lease Name: _____ Well #: _____

Field Name: _____

Producing Formation: _____

Elevation: Ground: _____ Kelly Bushing: _____

Total Vertical Depth: _____ Plug Back Total Depth: _____

Amount of Surface Pipe Set and Cemented at: _____ Feet

Multiple Stage Cementing Collar Used? Yes No

If yes, show depth set: _____ Feet

If Alternate II completion, cement circulated from: _____

feet depth to: _____ w/ _____ sx cmt.

Drilling Fluid Management Plan

(Data must be collected from the Reserve Pit)

Chloride content: _____ ppm Fluid volume: _____ bbls

Dewatering method used: _____

Location of fluid disposal if hauled offsite:

Operator Name: _____

Lease Name: _____ License #: _____

Quarter _____ Sec. _____ Twp. _____ S. R. _____ East West

County: _____ Permit #: _____

AFFIDAVIT

I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Submitted Electronically

KCC Office Use ONLY

Confidentiality Requested

Date: _____

Confidential Release Date: _____

Wireline Log Received Drill Stem Tests Received

Geologist Report / Mud Logs Received

UIC Distribution

ALT I II III Approved by: _____ Date: _____

Operator Name: _____ Lease Name: _____ Well #: _____

Sec. _____ Twp. _____ S. R. _____ East West County: _____

INSTRUCTIONS: Show important tops of formations penetrated. Detail all cores. Report all final copies of drill stems tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface test, along with final chart(s). Attach extra sheet if more space is needed.

Final Radioactivity Log, Final Logs run to obtain Geophysical Data and Final Electric Logs must be emailed to kcc-well-logs@kcc.ks.gov. Digital electronic log files must be submitted in LAS version 2.0 or newer AND an image file (TIFF or PDF).

Drill Stem Tests Taken <input type="checkbox"/> Yes <input type="checkbox"/> No <i>(Attach Additional Sheets)</i> Samples Sent to Geological Survey <input type="checkbox"/> Yes <input type="checkbox"/> No Cores Taken <input type="checkbox"/> Yes <input type="checkbox"/> No Electric Log Run <input type="checkbox"/> Yes <input type="checkbox"/> No Geologist Report / Mud Logs <input type="checkbox"/> Yes <input type="checkbox"/> No List All E. Logs Run: _____	<input type="checkbox"/> Log Formation (Top), Depth and Datum <input type="checkbox"/> Sample Name Top Datum
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CASING RECORD <input type="checkbox"/> New <input type="checkbox"/> Used							
Report all strings set-conductor, surface, intermediate, production, etc.							
Purpose of String	Size Hole Drilled	Size Casing Set (In O.D.)	Weight Lbs. / Ft.	Setting Depth	Type of Cement	# Sacks Used	Type and Percent Additives

ADDITIONAL CEMENTING / SQUEEZE RECORD				
Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
<input type="checkbox"/> Perforate <input type="checkbox"/> Protect Casing <input type="checkbox"/> Plug Back TD <input type="checkbox"/> Plug Off Zone				

1. Did you perform a hydraulic fracturing treatment on this well? Yes No *(If No, skip questions 2 and 3)*
2. Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons? Yes No *(If No, skip question 3)*
3. Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry? Yes No *(If No, fill out Page Three of the ACO-1)*

Date of first Production/Injection or Resumed Production/Injection:	Producing Method: <input type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other <i>(Explain)</i> _____				
Estimated Production Per 24 Hours	Oil Bbls.	Gas Mcf	Water Bbls.	Gas-Oil Ratio	Gravity

DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i>	METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <i>(Submit ACO-4)</i>	PRODUCTION INTERVAL: Top Bottom
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Shots Per Foot	Perforation Top	Perforation Bottom	Bridge Plug Type	Bridge Plug Set At	Acid, Fracture, Shot, Cementing Squeeze Record <i>(Amount and Kind of Material Used)</i>

TUBING RECORD:	Size:	Set At:	Packer At:	
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Form	ACO1 - Well Completion
Operator	Downing-Nelson Oil Co Inc
Well Name	MARK ARMBRISTER 1-27
Doc ID	1387228

All Electric Logs Run

Sonic
Micro
Dual Induction
Compensated Density Neutron

Form	ACO1 - Well Completion
Operator	Downing-Nelson Oil Co Inc
Well Name	MARK ARMBRISTER 1-27
Doc ID	1387228

Tops

Name	Top	Datum
Top Anhydrite	1728'	+639
Base Anhydrite	1770'	+597
Topeka	3436'	-1069
Heebner	3670'	-1303
Toronto	3690'	-1323
LKC	3708'	-1341
BKC	3952'	-1585
Marmaton	4024'	-1657
Cherokee Shale	4069'	-1702
Conglomerate Sand 1	4100'	-1733
Conglomerat Sand 2	4114'	-1747
Arbuckle	4190'	-1823

Marc A. Downing
Consulting Petroleum Geologist

Geologic Report
Drilling Time and Sample Log

Operator Downing-Nelson Oil Co., Inc.			Elevation KB 2367	
Lease Mark Armbrister			No. 1-27	
API # 15-195-23034-0000			Casing Record Surface 8 5/8" @ 221'	
Field Wildcat			Production 5 1/2" @ 4245'	
Location 2000' FNL & 2560' FEL			Electrical Surveys CNDL, DIL MEL, Sonic	
Sec. 27	Twp. 13s	Rge. 21w		
County Trego	State Kansas			
Formation	Sample tops	Log Tops	Datum	Struct Comp
Top Anhydrite	1729	1728	+639	-1
Base Anhydrite	1775	1770	+597	FL
Topeka	3437	3436	-1069	-8
Heebner	3670	3670	-1303	-8
Toronto	3692	3690	-1323	-6
LKC	3706	3708	-1341	-7
BKC	3951	3952	-1585	-5
Marmaton	4022	4024	-1657	-5
Cherokee Sh	4064	4069	-1702	-5
Conglomerate Sand 1	4099	4100	-1733	Absent
Conglomerate Sand 2	4113	4114	-1747	Absent
Arbuckle	4190	4190	-1823	Not Reached
Total Depth	4245	4246	-1879	
Reference Well For Structural Comparison Loflin #1 C-S2-NE Sec. 27-13s-21w			Godsey-Earlougher	

Drilling Contractor	Discover Drilling, Rig #4	
Commenced	1-13-18	Completed 1-21-18
Samples Saved From	3400	To RTD
Drilling Time Kept From	3300	To RTD
Samples Examined From	3400	To RTD
Geological Supervision From	3400	To RTD

Summary and Recommendations		
Due to structural position, DST recovery, and log evaluation, it was decided to set 5 1/2" production casing for completion.		

Respectfully Submitted,

Marc A. Downing

ROCK TYPES: shale, gray; Carbon Sh; shale, red; ss

ACCESSORIES: Dolomite; Limestone; red shale

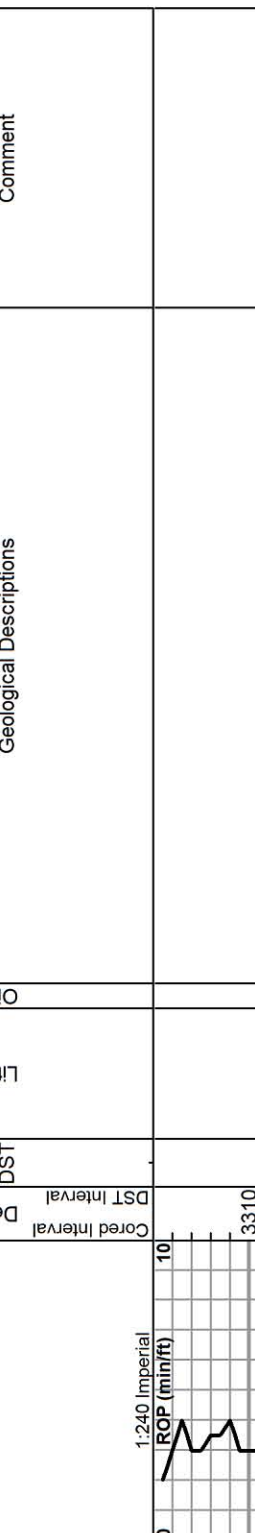
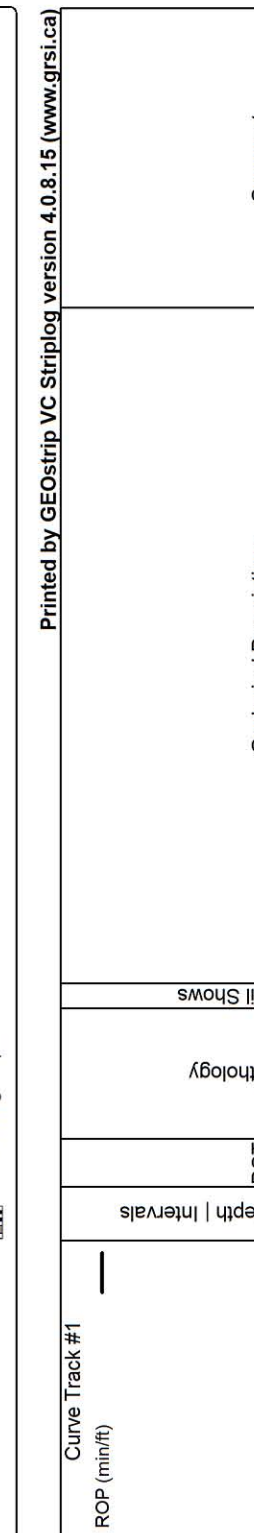
STRONGER: Chert; dark; Chert; White

MINERAL: Chert; dark; Chert; White

OIL SHOWS: Even Sh; Spotted Sin 50-75%; Spotted Sin 25-50%; Spotted Sin 1-25%; Dark Oil Sin; Fluorescence

MISC: Daily Report; Digital Photo; Document; Folder; Link; Vertical Log File; Horizontal Log File; Core Log File; Drill Cuttings Rpt

DST: DST Int; DST alt; Core; It tail pipe



Depth (ft)	Geological Descriptions	Comment
3310-3320	LS: tan-wht, fr-md xin, scat foss. Mostly pr por and dns, scat fr amt sub xin-chiky rx. All NS, no od.	
3320-3330	Sh: gry	
3330-3340	LS: wht-lt tan, fn xin, scat smt foss. Scat gd int xin por, mostly chiky. All NS, no od.	
3340-3350	Sh: drk gry	
3350-3360	Sh: gry	
3360-3370	LS: tan, fn-md xin, foss in prt. Pr por and dns, NS.	
3370-3380	LS: tan-wht, trng mostly wht. Fn xin, scat gd int xin por, mostly v chiky. Scat foss rx w/ smt vugs, all NS.	
3380-3390	LS: much ala, many chiky rx, scat shp wht cht, few mtid pcs. All totally barren, no od.	
3390-3400	Sh: Black Carb	
3400-3410	Sh: gry w/ brn.	
3410-3420	LS: wht, vfn-mic xin, v dns w/ no vis por. Totally barren w/ no od.	
3420-3430	LS: wht, fn xin, some ala. Trng sub xin-chiky, scat wht-tan cht. All NS.	
3430-3440	Sh: gry	
3440-3450	LS: tan, md xin. Scat foss, pr por and dns.	
3450-3460	Sh: Black Carb	
3460-3470	Sh: gry	
3470-3480	LS: wht, some fn-vfn xin and chiky. Scat md-tng foss, fr-gd int foss por. Wht-gry foss cht. All NS, no od. Trng pr por and dns.	
3480-3490	LS: wht, md xin, fr amt chiky rx, scat smt-md foss rx w/ fr-gd int foss por. NS, cht ala.	
3490-3500	Sh: gry	
3500-3510	LS: wht-tan, md xin, foss in prt. Many chiky rx, mtid in prt. Scat wht-gry cht, all NS, no od.	
3510-3520	LS: wht-tan, fn-md xin, fr amt sub xin-chiky rx. Trng mtid w/ smt foss, some fr int foss por. Scat tan and blk cht, all NS and no od.	
3520-3530	Heebner 3670 (-1303) Sh: Black Carb	
3530-3540	Sh: gry	
3540-3550	Toronto 3692 (-1025) LS: wht, fn-md xin, scat foss. Some fr-gd int xin and vug por, totally barren, no od.	
3550-3560	LKC 3706 (-1339) Sh: gry	
3560-3570	LS: wht-tan, md xin, foss. Fr int foss por, smt vugs. 4-5 rx w/ fr sat sin, fr SFO, stlly hvy, no od.	
3570-3580	LS: wht-tan, fn-md xin, few foss ala, poss carry. Trng dns w/ pr por, NS.	
3580-3590	Sh: gry	
3590-3600	LS: wht-tan, md xin, foss w/ few ool. Fr int foss por, few smt vugs. Fr SFO, hvy. Rx stlly tite, vnt-no od.	
3600-3610	Sh: gry w/ brn	
3610-3620	LS: wht-tan, md xin, ool w/ frag foss. Fr int foss por, stlly sub xin. Fr sat sin in 1-2 rx, hvy. No od.	
3620-3630	Sh: gry w/ brn	
3630-3640	LS: wht, fn xin, foss in prt. 1-2 rx w/ fr int xin por, fr stn and spdt SFO. Rest sub xin-chiky. Fnt od.	
3640-3650	Sh: gry	
3650-3660	LS: wht, fn xin. Scat foss and ool w/ gd mbxn por. Fr amt chiky rx, all NS, no od.	
3660-3670	Sh: gry	
3670-3680	LS: wht, fn xin, scat frag foss and ool. Scat gd vug por, mostly chiky, all NS and no od.	
3680-3690	LS: wht-lt tan, fn xin and dns, no vis por. Fr amt tan shp cht, foss in prt. All NS.	
3690-3700	Sh: Black Carb	
3700-3710	Sh: gry w/ brn	
3710-3720	LS: wht, fn-md xin, few foss. Scat sub xin-chiky rx w/ NS. Scat lt tan cht w/ poss pp por and lt brn stn, NSFO, no od.	
3720-3730	Sh: gry w/ drk gry	
3730-3740	LS: tan-wht, fn-md xin. Mostly pr por and tite. 2-3 rx w/ fr sat sin and fr spdt SFO in fr int xin and pp por. Fnt-ht od. Trng dns.	
3740-3750	Sh: gry	
3750-3760	LS: wht, fn xin. Fr amt subxin-chiky rx w/ NS. Few pcs w/ pr stn and NSFO in fr int xin por. Trng pr por and dns.	
3760-3770	Sh: drk gry w/ some black.	
3770-3780	LS: wht-tan, fn-md xin, subxin-chiky, NS, scat shp blk cht. Trng fr amt tot ool, no vis por and dns. 1-2 rx w/ pr stn and fr spdt SFO in int xin por. No od.	
3780-3790	Sh: gry	
3790-3800	LS: wht, mostly fn xin and stlly chiky. Scat pr ooc por, all totally barren, no od.	
3800-3810	LS: wht-tan, fn-md xin, pr por and dns, NS.	
3810-3820	BKC 3951 (-1584) Sh: gry w/ brn	
3820-3830	LS: wht, fn-md xin, dns	
3830-3840	Sh: brn w/ gry	
3840-3850	Sh: gry	
3850-3860	LS: tan-wht, ool, irr ool, pr por and dns, no vis por.	
3860-3870	Sh: brn-gry	
3870-3880	LS: tan-wht, fn-md xin, dns. Scat org cht.	
3880-3890	Marmaton 4022 (-1655) LS: tan, fn-md xin. Mostly pr por and dns w/ NS. 2-3 rx w/ fr stn and spdt SFO in pr pp por, tite. Fnt-no od.	
3890-3900	LS: wht, fn xin, suc in prt. Scat-fr amt subxin-chiky rx, 4-5 rx w/ gd int xin por, gd sat sin w/ gd SFO. Fr amt wht-lt tan shp cht, frac, w/ fr mbw stn on edge. Lt od.	
3900-3910	Mostly lt tan, some wht cht, shp, frac. Fr-gd mbw stn throughout, lt-fr od.	
3910-3920	Cherokee Sh. 4064 (-1697) Sh: gry w/ scat tan cht	
3920-3930		
3930-3940		
3940-3950		
3950-3960		
3960-3970		
3970-3980		
3980-3990		
3990-4000		
4000-4010		
4010-4020		
4020-4030		
4030-4040		
4040-4050		
4050-4060		
4060-4070		
4070-4080		
4080-4090		
4090-4100		
4100-4110		
4110-4120		
4120-4130		
4130-4140		
4140-4150		
4150-4160		
4160-4170		
4170-4180		
4180-4190		
4190-4200		
4200-4210		
4210-4220		
4220-4230		
4230-4240		
4240-4250		



DRILL STEM TEST REPORT

Prepared For: **DNOC**

PO Box 1019
Hays KS 67601

ATTN: Marc Downing

27-13S-21W Trego,KS

Mark Armbrister #1-27

Start Date: 2018.01.18 @ 10:41:00

End Date: 2018.01.18 @ 16:57:45

Job Ticket #: 63539 DST #: 1

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2018.01.22 @ 11:41:16

DNOC
Mark Armbrister #1-27
27-13S-21W Trego,KS
DST # 1
LKC:ER
2018.01.18



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

DNOC
PO Box 1019
Hays KS 67601
ATTN: Marc Downing

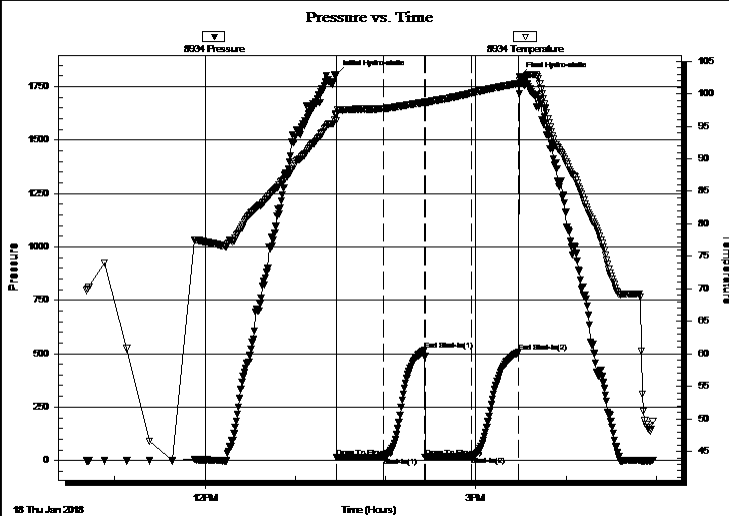
Mark Armbrister #1-27
27-13S-21W Trego,KS
Job Ticket: 63539 **DST#: 1**
Test Start: 2018.01.18 @ 10:41:00

GENERAL INFORMATION:

Formation: **LKC 'E'**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 13:27:15
Time Test Ended: 16:57:45
Interval: **3767.00 ft (KB) To 3784.00 ft (KB) (TVD)**
Total Depth: 3784.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Test Type: Conventional Bottom Hole (Initial)
Tester: Spencer J. Staab
Unit No: 84
Reference Elevations: 2367.00 ft (KB)
2359.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 8934 Outside
Press@RunDepth: 17.66 psig @ 3768.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2018.01.18 End Date: 2018.01.18 Last Calib.: 2018.01.18
Start Time: 10:41:15 End Time: 16:57:45 Time On Btm: 2018.01.18 @ 13:27:00
Time Off Btm: 2018.01.18 @ 15:28:45

TEST COMMENT: 30-IF-Weak Blow ; Built to 1"
30-ISI-No Return
30-FF-Weak Surface Blow
30-FSI-No Return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1805.87	96.89	Initial Hydro-static
1	14.89	95.92	Open To Flow (1)
32	15.58	97.73	Shut-In(1)
59	515.13	98.70	End Shut-In(1)
60	16.06	98.42	Open To Flow (2)
91	17.66	100.11	Shut-In(2)
122	506.05	101.59	End Shut-In(2)
122	1796.22	102.08	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
10.00	Mud 100%M	0.05
0.00	Oil spots on top of tool	0.00

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

DNOC
PO Box 1019
Hays KS 67601
ATTN: Marc Downing

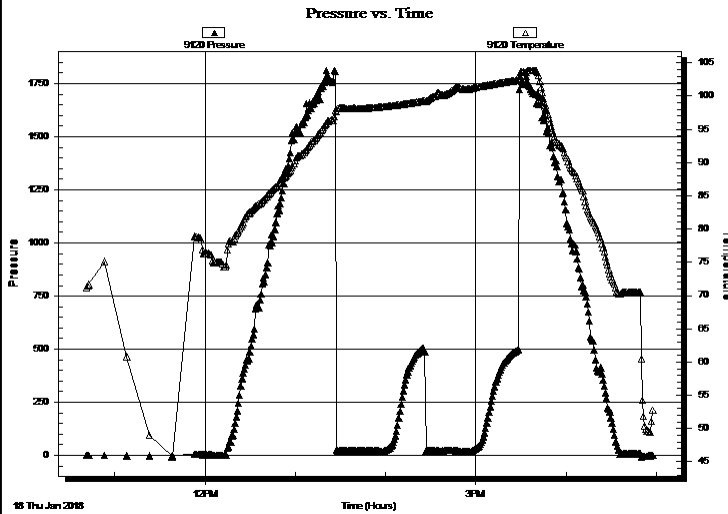
Mark Armbrister #1-27
27-13S-21W Trego,KS
Job Ticket: 63539 **DST#: 1**
Test Start: 2018.01.18 @ 10:41:00

GENERAL INFORMATION:

Formation: **LKC 'E'**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 13:27:15
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Interval: **3767.00 ft (KB) To 3784.00 ft (KB) (TVD)**
Total Depth: 3784.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Test Type: Conventional Bottom Hole (Initial)
Tester: Spencer J. Staab
Unit No: 84
Reference Elevations: 2367.00 ft (KB)
2359.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 9120 **Inside**
Press@RunDepth: psig @ 3768.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2018.01.18 End Date: 2018.01.18 Last Calib.: 2018.01.18
Start Time: 10:41:15 End Time: 16:57:45 Time On Btm:
Time Off Btm:

TEST COMMENT: 30-IF-Weak Blow ; Built to 1"
30-ISI-No Return
30-FF-Weak Surface Blow
30-FSI-No Return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

Recovery

Length (ft)	Description	Volume (bbl)
10.00	Mud 100%M	0.05
0.00	Oil spots on top of tool	0.00

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

DNOC
PO Box 1019
Hays KS 67601
ATTN: Marc Downing

Mark Armbrister #1-27
27-13S-21W Trego,KS
Job Ticket: 63539 **DST#: 1**
Test Start: 2018.01.18 @ 10:41:00

Tool Information

Drill Pipe:	Length: 3740.00 ft	Diameter: 3.80 inches	Volume: 52.46 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 2.75 inches	Volume: - bbl	Weight set on Packer:	20000.00 lb
Drill Collar:	Length: 32.00 ft	Diameter: 2.25 inches	Volume: 0.16 bbl	Weight to Pull Loose:	78000.00 lb
			<u>Total Volume:</u>	Tool Chased	0.00 ft
Drill Pipe Above KB:	25.00 ft			String Weight: Initial	60000.00 lb
Depth to Top Packer:	3767.00 ft			Final	60000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	17.00 ft				
Tool Length:	37.00 ft				
Number of Packers:	1	Diameter: 6.75 inches			

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			3748.00	
Shut In Tool	5.00			3753.00	
Hydraulic tool	5.00			3758.00	
Packer	5.00			3763.00	20.00 Bottom Of Top Packer
Packer	4.00			3767.00	
Stubb	1.00			3768.00	
Recorder	0.00	9120	Inside	3768.00	
Recorder	0.00	8934	Outside	3768.00	
Perforations	12.00			3780.00	
Bullnose	4.00			3784.00	17.00 Bottom Packers & Anchor
Total Tool Length:	37.00				



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

DNOG
PO Box 1019
Hays KS 67601
ATTN: Marc Downing

Mark Armbrister #1-27
27-13S-21W Trego,KS
Job Ticket: 63539 **DST#: 1**
Test Start: 2018.01.18 @ 10:41:00

Mud and Cushion Information

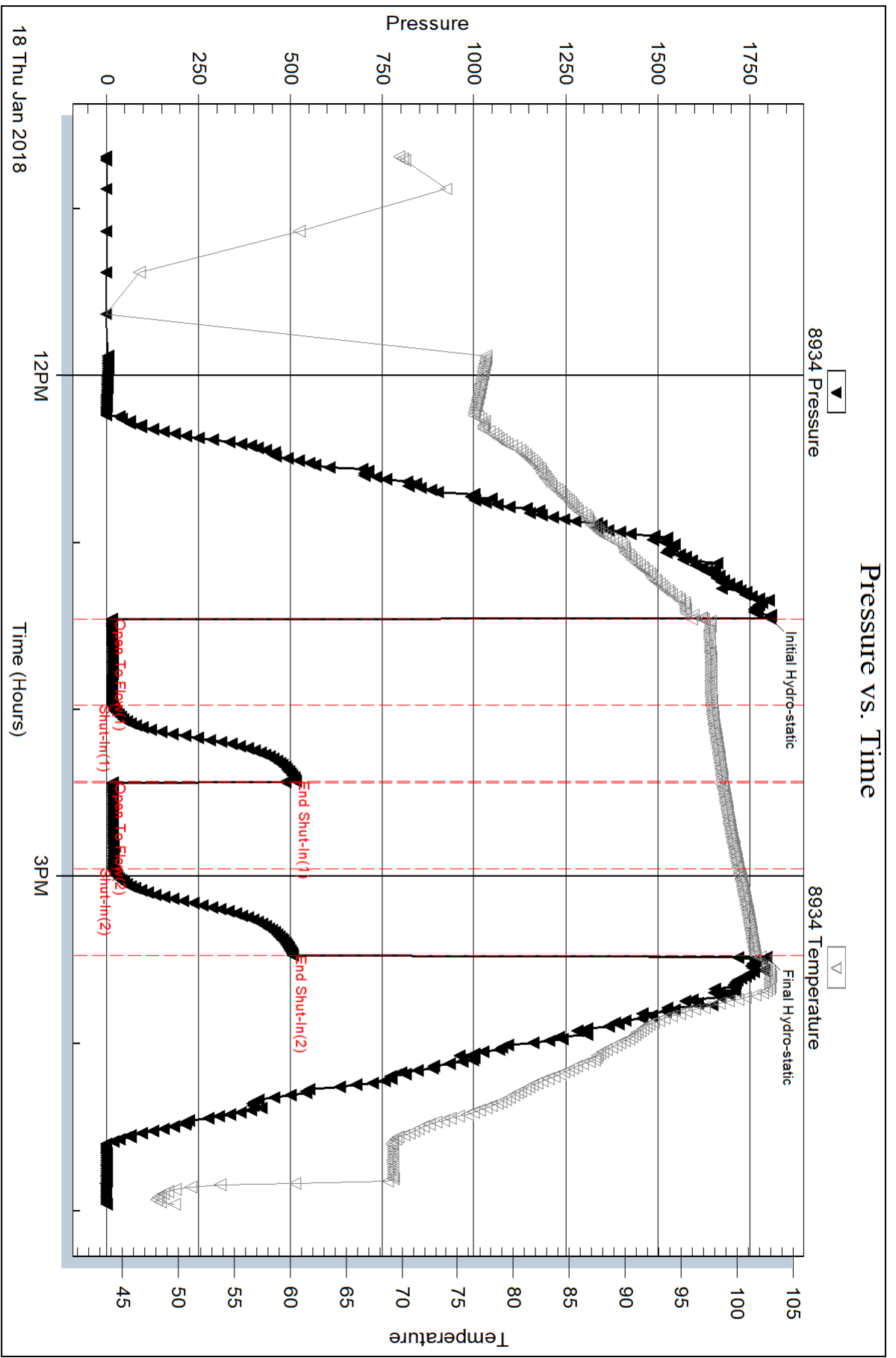
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 51.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.19 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 6500.00 ppm			
Filter Cake: inches			

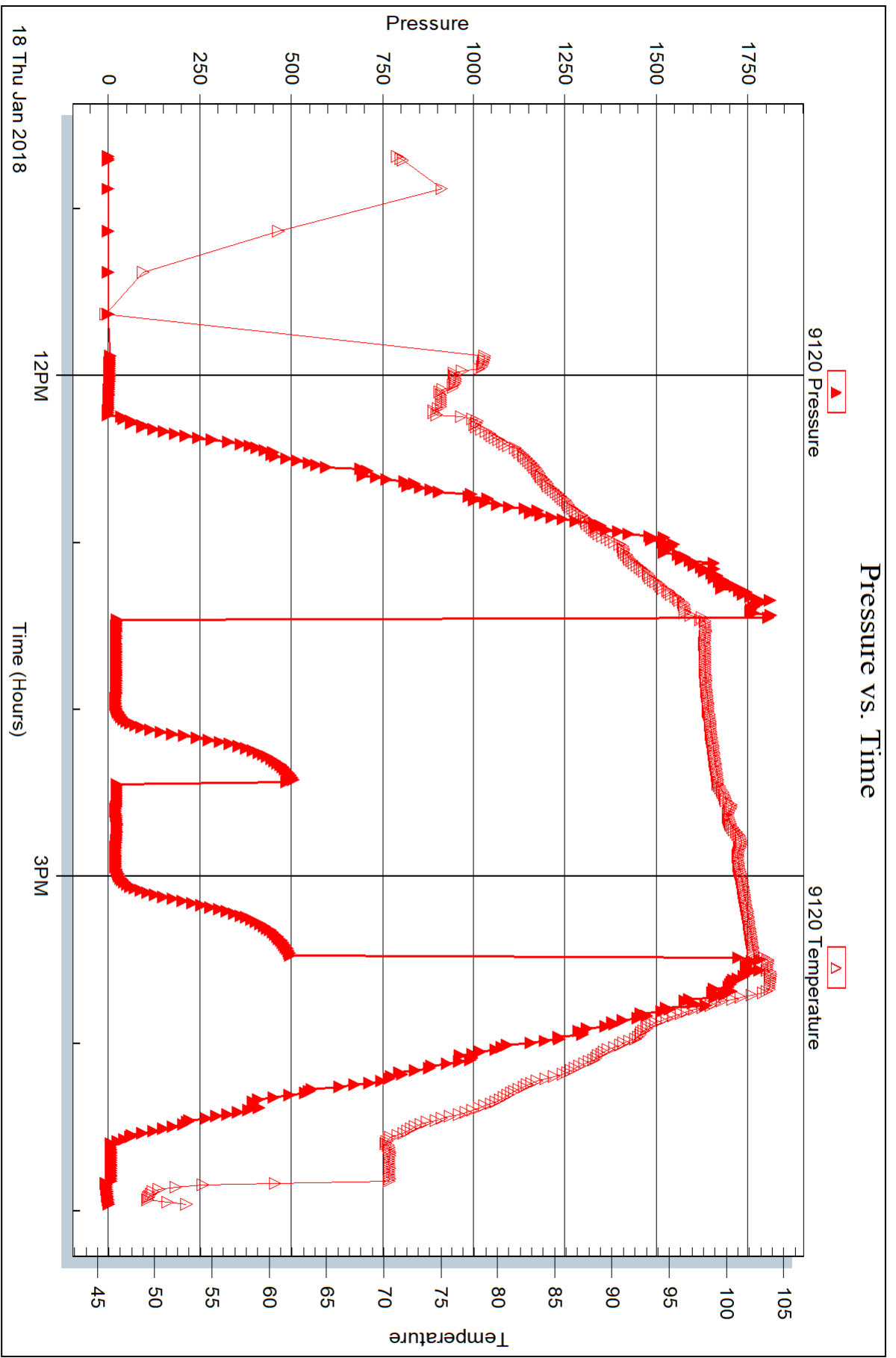
Recovery Information

Recovery Table

Length ft	Description	Volume bbl
10.00	Mud 100%M	0.049
0.00	Oil spots on top of tool	0.000

Total Length: 10.00 ft Total Volume: 0.049 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments: 1/2#LCM







DRILL STEM TEST REPORT

Prepared For: **DNOC**

PO Box 1019
Hays KS 67601

ATTN: Marc Downing

27-13S-21W Trego,KS

Mark Armbrister #1-27

Start Date: 2018.01.19 @ 14:18:00

End Date: 2018.01.19 @ 19:53:30

Job Ticket #: 63540 DST #: 2

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2018.01.22 @ 11:40:37

DNOC
Mark Armbrister #1-27
27-13S-21W Trego,KS
DST # 2
Marmaton
2018.01.19



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

DNOC
PO Box 1019
Hays KS 67601
ATTN: Marc Downing

Mark Armbrister #1-27
27-13S-21W Trego,KS
Job Ticket: 63540 **DST#: 2**
Test Start: 2018.01.19 @ 14:18:00

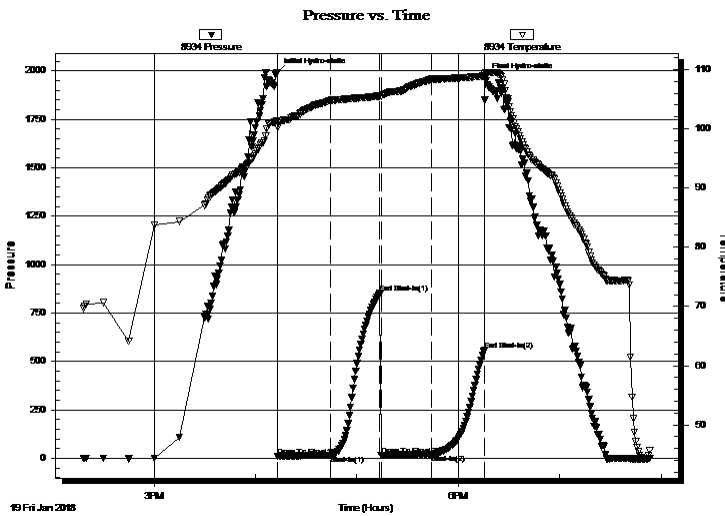
GENERAL INFORMATION:

Formation: **Marmaton**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 16:13:15
Time Test Ended: 19:53:30
Interval: **4030.00 ft (KB) To 4060.00 ft (KB) (TVD)**
Total Depth: 4060.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Test Type: Conventional Bottom Hole (Reset)
Tester: Spencer J. Staab
Unit No: 84
Reference Elevations: 2367.00 ft (KB)
2359.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 8934 Outside
Press@RunDepth: 20.67 psig @ 4031.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2018.01.19 End Date: 2018.01.19 Last Calib.: 2018.01.19
Start Time: 14:18:15 End Time: 19:53:30 Time On Btm: 2018.01.19 @ 16:13:00
Time Off Btm: 2018.01.19 @ 18:16:00

TEST COMMENT: 30-IF-Weak Blow ; Built to 1"
30-ISI-No Return
30-FF-No Blow
30-FSI-No Return

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1991.33	101.43	Initial Hydro-static
1	11.68	100.25	Open To Flow (1)
32	15.60	104.75	Shut-In(1)
61	852.35	105.53	End Shut-In(1)
62	17.26	105.63	Open To Flow (2)
91	20.67	108.35	Shut-In(2)
123	557.43	108.91	End Shut-In(2)
123	1964.85	109.45	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
10.00	Oil Spotted Mud 100%M	0.05
0.00	Free Oil on Top of Tool	0.00

* Recovery from multiple tests

Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

DNOC
 PO Box 1019
 Hays KS 67601
 ATTN: Marc Downing

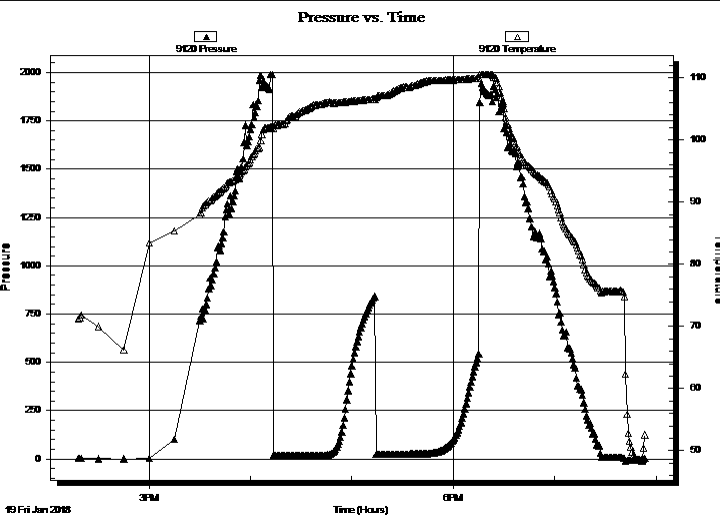
Mark Armbrister #1-27
27-13S-21W Trego,KS
 Job Ticket: 63540 **DST#: 2**
 Test Start: 2018.01.19 @ 14:18:00

GENERAL INFORMATION:

Formation: **Marmaton**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 16:13:15
 Time Test Ended: 19:53:30
 Interval: **4030.00 ft (KB) To 4060.00 ft (KB) (TVD)**
 Total Depth: 4060.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Spencer J. Staab
 Unit No: 84
 Reference Elevations: 2367.00 ft (KB)
 2359.00 ft (CF)
 KB to GR/CF: 8.00 ft

Serial #: 9120 Inside
 Press@RunDepth: psig @ 4031.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2018.01.19 End Date: 2018.01.19 Last Calib.: 2018.01.19
 Start Time: 14:18:15 End Time: 19:53:30 Time On Btm:
 Time Off Btm:

TEST COMMENT: 30-IF-Weak Blow ; Built to 1"
 30-ISI-No Return
 30-FF-No Blow
 30-FSI-No Return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

Recovery

Length (ft)	Description	Volume (bbl)
10.00	Oil Spotted Mud 100%M	0.05
0.00	Free Oil on Top of Tool	0.00

* Recovery from multiple tests

Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

DNOC
PO Box 1019
Hays KS 67601
ATTN: Marc Downing

Mark Armbrister #1-27
27-13S-21W Trego,KS
Job Ticket: 63540 **DST#: 2**
Test Start: 2018.01.19 @ 14:18:00

Tool Information

Drill Pipe:	Length: 3993.00 ft	Diameter: 3.80 inches	Volume: 56.01 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 2.75 inches	Volume: - bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 32.00 ft	Diameter: 2.25 inches	Volume: 0.16 bbl	Weight to Pull Loose:	61000.00 lb
			<u>Total Volume:</u>	Tool Chased	ft
Drill Pipe Above KB:	15.00 ft			String Weight: Initial	60000.00 lb
Depth to Top Packer:	4030.00 ft			Final	60000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	30.00 ft				
Tool Length:	50.00 ft				
Number of Packers:	1	Diameter: 6.75 inches			

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
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Change Over Sub	1.00			4011.00	
Shut In Tool	5.00			4016.00	
Hydraulic tool	5.00			4021.00	
Packer	5.00			4026.00	20.00 Bottom Of Top Packer
Packer	4.00			4030.00	
Stubb	1.00			4031.00	
Recorder	0.00	9120	Inside	4031.00	
Recorder	0.00	8934	Outside	4031.00	
Perforations	25.00			4056.00	
Bullnose	4.00			4060.00	30.00 Bottom Packers & Anchor
Total Tool Length:	50.00				



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

DNOG
PO Box 1019
Hays KS 67601
ATTN: Marc Downing

Mark Armbrister #1-27
27-13S-21W Trego,KS
Job Ticket: 63540 **DST#: 2**
Test Start: 2018.01.19 @ 14:18:00

Mud and Cushion Information

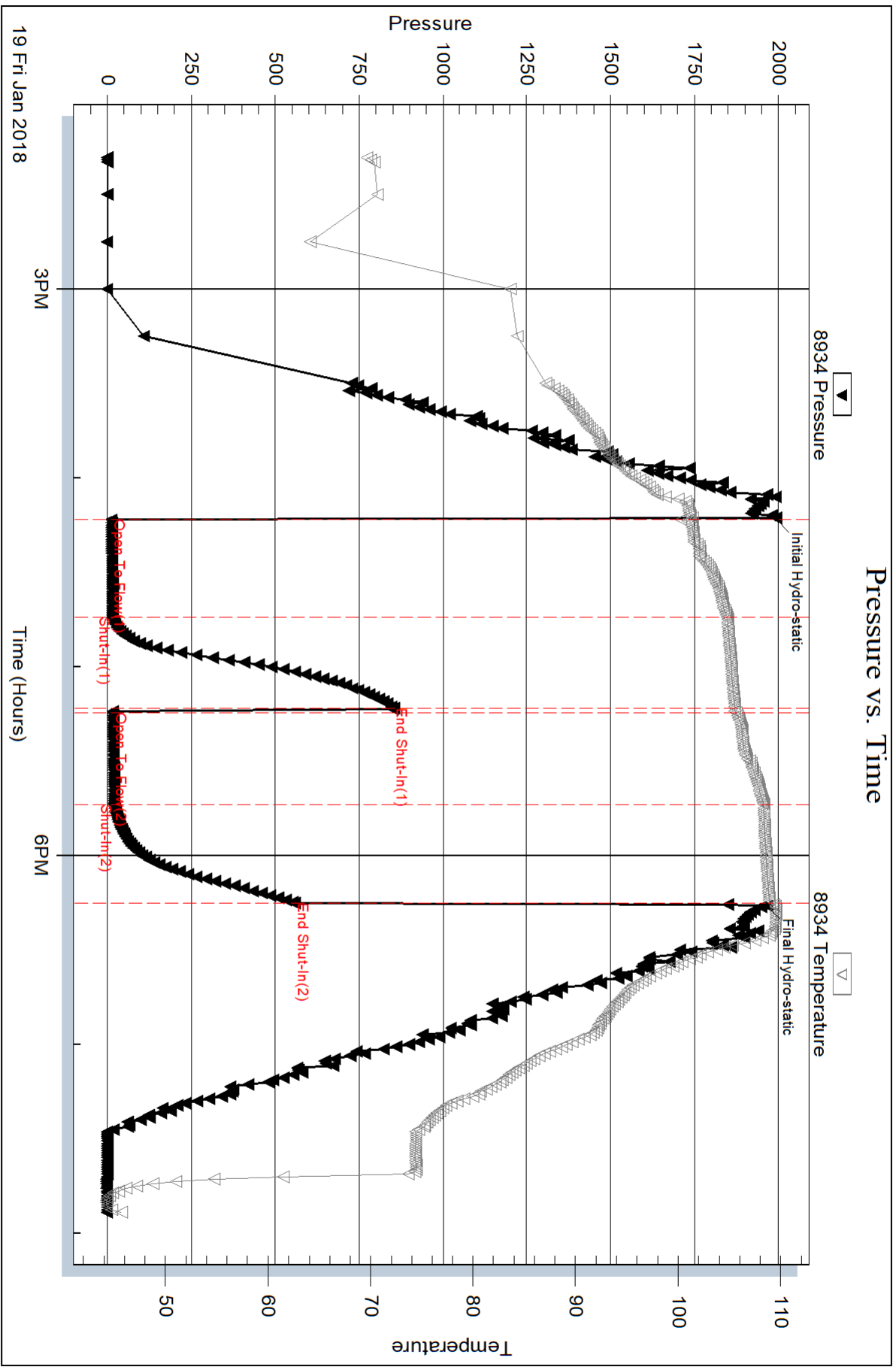
Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	ppm
Viscosity: 57.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.59 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 7500.00 ppm			
Filter Cake: inches			

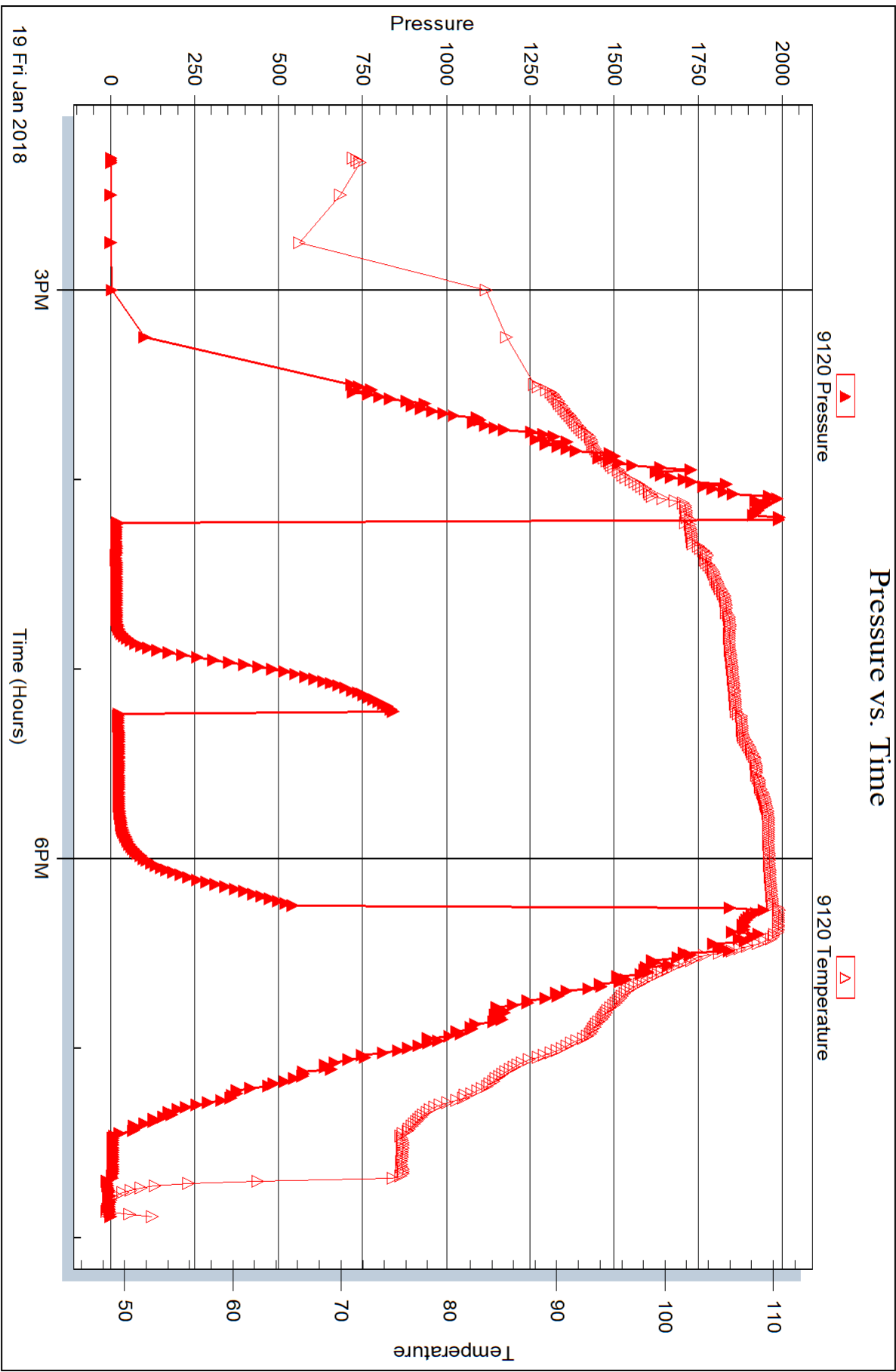
Recovery Information

Recovery Table

Length ft	Description	Volume bbl
10.00	Oil Spotted Mud 100%M	0.049
0.00	Free Oil on Top of Tool	0.000

Total Length: 10.00 ft Total Volume: 0.049 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments: 1/2#LCM







DRILL STEM TEST REPORT

Prepared For: **DNOC**

PO Box 1019
Hays KS 67601

ATTN: Marc Downing

27-13S-21W Trego,KS

Mark Armbrister #1-27

Start Date: 2018.01.20 @ 03:47:00

End Date: 2018.01.20 @ 10:37:45

Job Ticket #: 63541 DST #: 3

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2018.01.22 @ 11:40:11

DNOC
Mark Armbrister #1-27
27-13S-21W Trego,KS
DST # 3
Cherokee Sand
2018.01.20



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

DNOC
PO Box 1019
Hays KS 67601
ATTN: Marc Downing

Mark Armbrister #1-27
27-13S-21W Trego,KS
Job Ticket: 63541 **DST#: 3**
Test Start: 2018.01.20 @ 03:47:00

GENERAL INFORMATION:

Formation: **Cherokee Sand**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 06:02:00
Time Test Ended: 10:37:45
Interval: **4057.00 ft (KB) To 4107.00 ft (KB) (TVD)**
Total Depth: 4107.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Reference Elevations: 2367.00 ft (KB)
2359.00 ft (CF)
KB to GR/CF: 8.00 ft
Test Type: Conventional Bottom Hole (Reset)
Tester: Spencer J. Staab
Unit No: 84

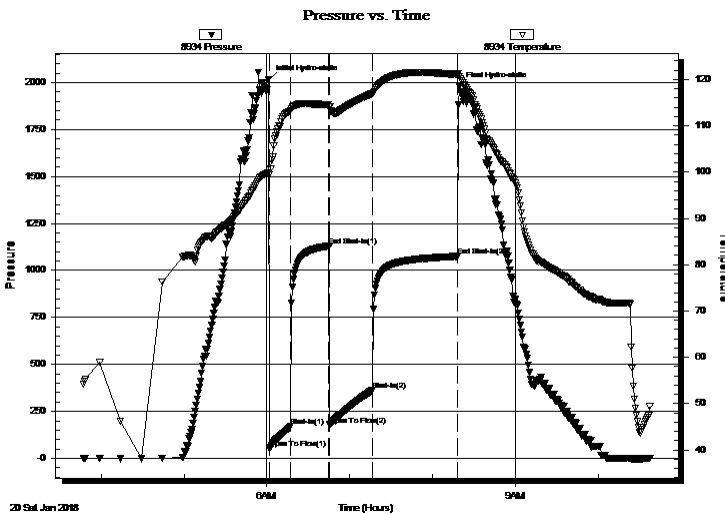
Serial #: 8934

Inside

Press@RunDepth: 362.72 psig @ 4061.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2018.01.20 End Date: 2018.01.20 Last Calib.: 2018.01.20
Start Time: 03:47:15 End Time: 10:37:45 Time On Btm: 2018.01.20 @ 06:01:30
Time Off Btm: 2018.01.20 @ 08:19:15

TEST COMMENT: 15-IF-Strong Blow ; BOB (11") in 2 1/2 min
30-ISI-Fair Blow ; Built to 4"
30-FF-Strong Blow ; BOB in 3 min
60-FSI-Weak Blow ; Built to 1" Died back to surface

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2017.60	99.93	Initial Hydro-static
1	54.83	99.38	Open To Flow (1)
16	169.09	113.23	Shut-In(1)
43	1129.51	114.59	End Shut-In(1)
44	179.16	114.20	Open To Flow (2)
75	362.72	117.00	Shut-In(2)
137	1075.04	121.06	End Shut-In(2)
138	1979.44	120.58	Final Hydro-static

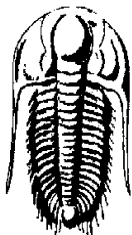
Recovery

Length (ft)	Description	Volume (bbl)
370.00	GMCO 20%G 15%M 65%O	4.90
630.00	GO 20%G 80%O	8.84
0.00	210' GIP 100%G	0.00

* Recovery from multiple tests

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



TRILOBITE
TESTING, INC.

DRILL STEM TEST REPORT

DNOC
PO Box 1019
Hays KS 67601
ATTN: Marc Downing

Mark Armbrister #1-27
27-13S-21W Trego,KS
Job Ticket: 63541 **DST#: 3**
Test Start: 2018.01.20 @ 03:47:00

GENERAL INFORMATION:

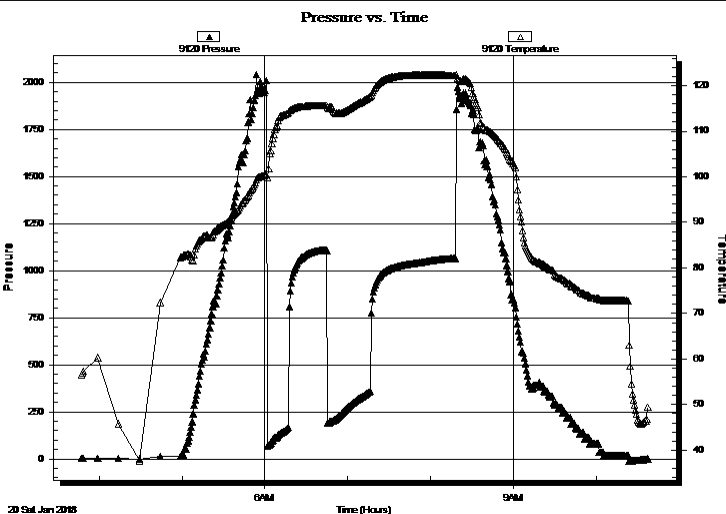
Formation: **Cherokee Sand**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 06:02:00
Time Test Ended: 10:37:45
Interval: **4057.00 ft (KB) To 4107.00 ft (KB) (TVD)**
Total Depth: 4107.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Test Type: Conventional Bottom Hole (Reset)
Tester: Spencer J. Staab
Unit No: 84
Reference Elevations: 2367.00 ft (KB)
2359.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 9120

Inside

Press@RunDepth: psig @ 4061.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2018.01.20 End Date: 2018.01.20 Last Calib.: 2018.01.20
Start Time: 03:47:15 End Time: 10:37:45 Time On Btm:
Time Off Btm:

TEST COMMENT: 15-IF-Strong Blow ; BOB (11") in 2 1/2 min
30-ISI-Fair Blow ; Built to 4"
30-FF-Strong Blow ; BOB in 3 min
60-FSI-Weak Blow ; Built to 1" Died back to surface



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

Recovery

Length (ft)	Description	Volume (bbl)
370.00	GMCO 20%G 15%M 65%O	4.90
630.00	GO 20%G 80%O	8.84
0.00	210' GIP 100%G	0.00

Gas Rates

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)

* Recovery from multiple tests



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

DNOC
PO Box 1019
Hays KS 67601
ATTN: Marc Downing

Mark Armbrister #1-27
27-13S-21W Trego,KS
Job Ticket: 63541 **DST#: 3**
Test Start: 2018.01.20 @ 03:47:00

Tool Information

Drill Pipe:	Length: 4024.00 ft	Diameter: 3.80 inches	Volume: 56.45 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 2.75 inches	Volume: - bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 32.00 ft	Diameter: 2.25 inches	Volume: 0.16 bbl	Weight to Pull Loose:	66000.00 lb
			<u>Total Volume:</u>	Tool Chased	ft
Drill Pipe Above KB:	19.00 ft			String Weight: Initial	60000.00 lb
Depth to Top Packer:	4057.00 ft			Final	65000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	50.00 ft				
Tool Length:	70.00 ft				
Number of Packers:	1	Diameter: 6.75 inches			

Tool Comments:

Tool Description

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4038.00	
Shut In Tool	5.00			4043.00	
Hydraulic tool	5.00			4048.00	
Packer	5.00			4053.00	20.00 Bottom Of Top Packer
Packer	4.00			4057.00	
Stubb	1.00			4058.00	
Perforations	2.00			4060.00	
Change Over Sub	1.00			4061.00	
Recorder	0.00	9120	Inside	4061.00	
Recorder	0.00	8934	Inside	4061.00	
Drill Pipe	31.00			4092.00	
Change Over Sub	1.00			4093.00	
Perforations	10.00			4103.00	
Bullnose	4.00			4107.00	50.00 Bottom Packers & Anchor

Total Tool Length: 70.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

DNOC
PO Box 1019
Hays KS 67601

Mark Armbrister #1-27
27-13S-21W Trego,KS
Job Ticket: 63541 **DST#: 3**
Test Start: 2018.01.20 @ 03:47:00

ATTN: Marc Downing

Mud and Cushion Information

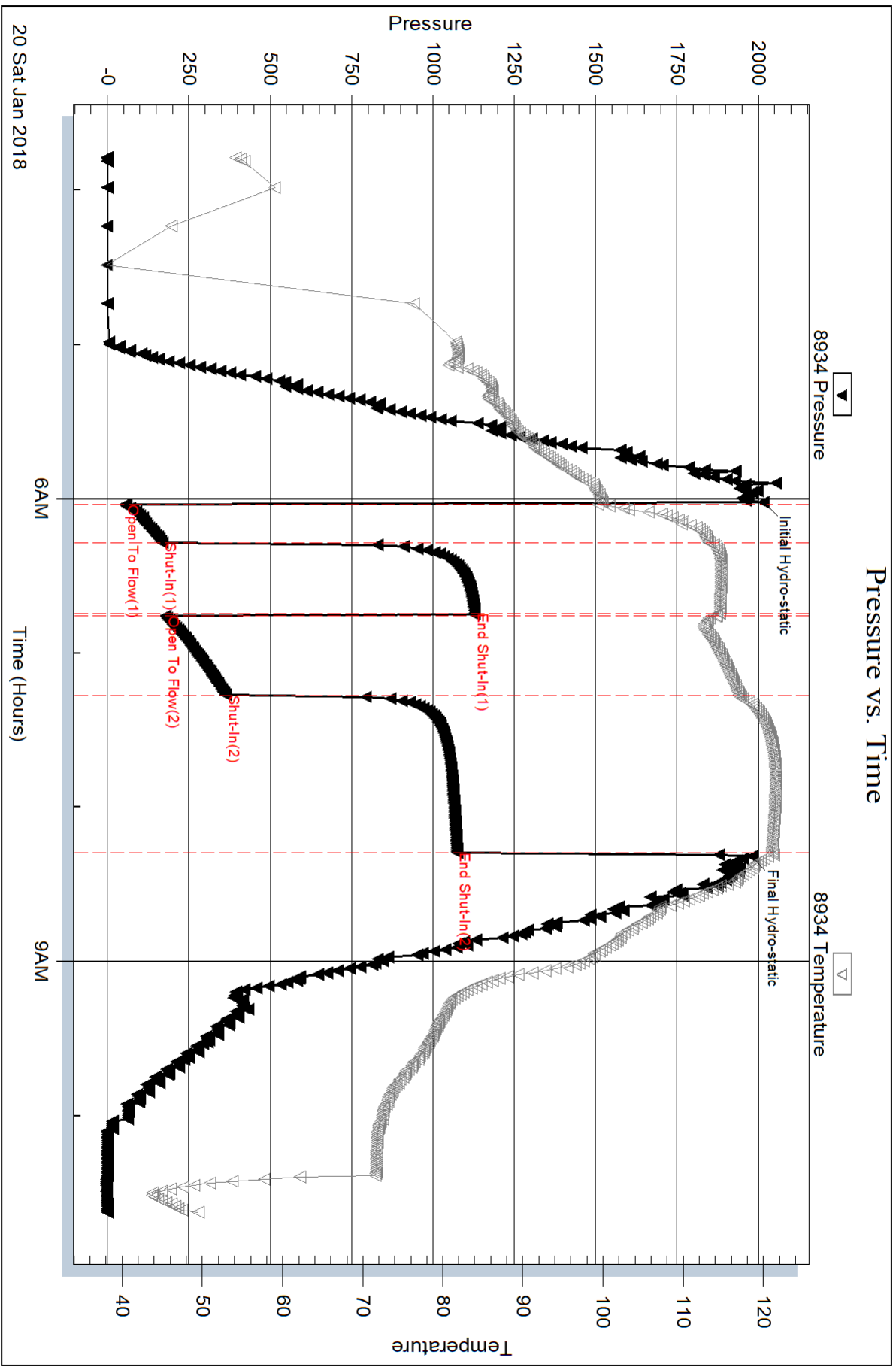
Mud Type: Gel Chem	Cushion Type:	Oil API: 31 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: ppm
Viscosity: 57.00 sec/qt	Cushion Volume: bbl	
Water Loss: 7.59 in ³	Gas Cushion Type:	
Resistivity: ohm.m	Gas Cushion Pressure: psig	
Salinity: 7500.00 ppm		
Filter Cake: inches		

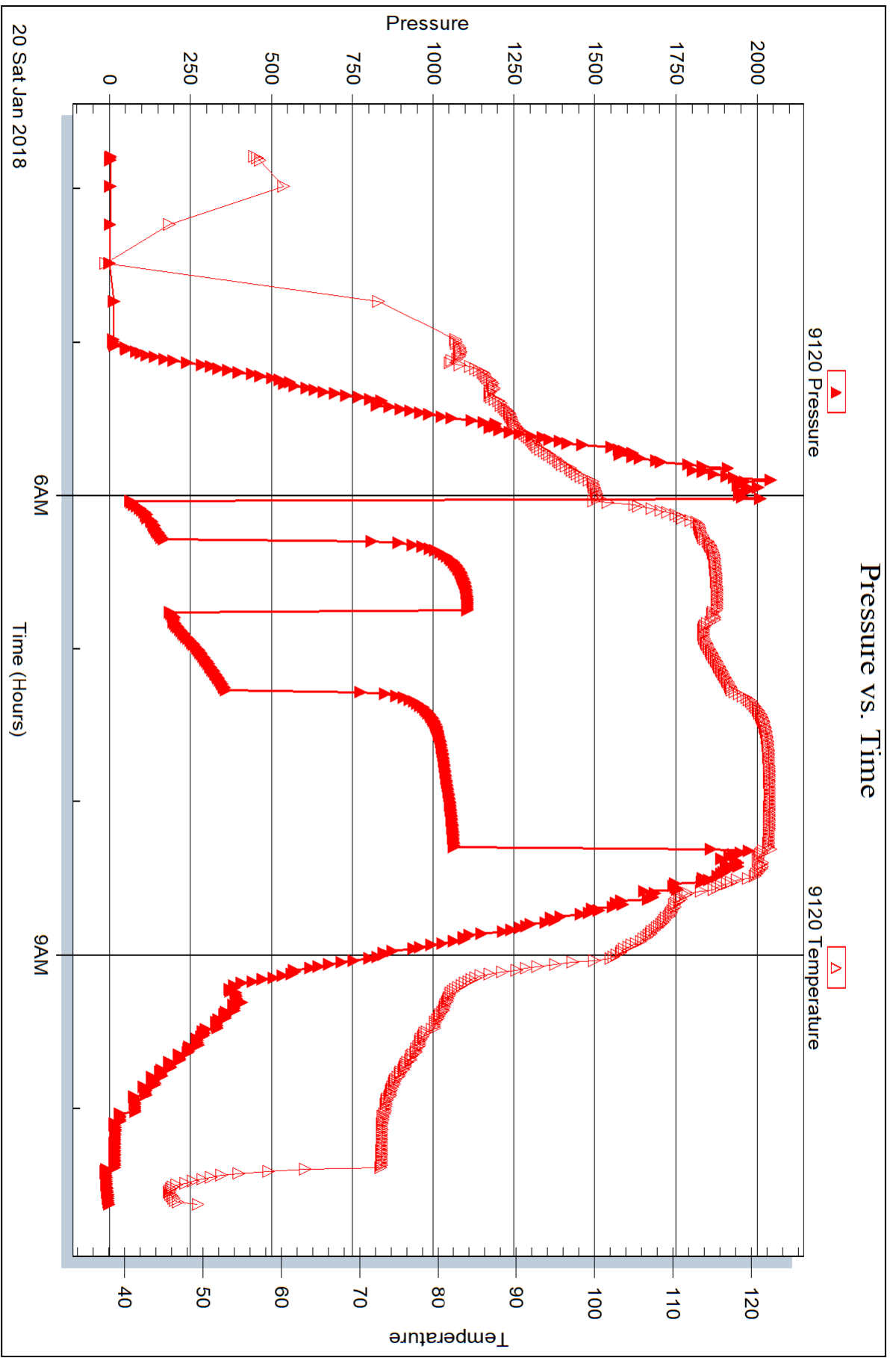
Recovery Information

Recovery Table

Length ft	Description	Volume bbl
370.00	GMCO 20%G 15%M 65%O	4.899
630.00	GO 20%G 80%O	8.837
0.00	210' GIP 100%G	0.000

Total Length: 1000.00 ft Total Volume: 13.736 bbl
Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments: 1/2#LCM







DRILL STEM TEST REPORT

Prepared For: **DNOC**

PO Box 1019
Hays KS 67601

ATTN: Marc Downing

27-13S-21W Trego,KS

Mark Armbrister #1-27

Start Date: 2018.01.20 @ 16:29:00

End Date: 2018.01.20 @ 23:50:00

Job Ticket #: 63542 DST #: 4

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2018.01.22 @ 11:39:44

DNOC Mark Armbrister #1-27 27-13S-21W Trego,KS DST # 4 Conglomerate Sand 2018.01.20



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

DNOB
PO Box 1019
Hays KS 67601
ATTN: Marc Downing

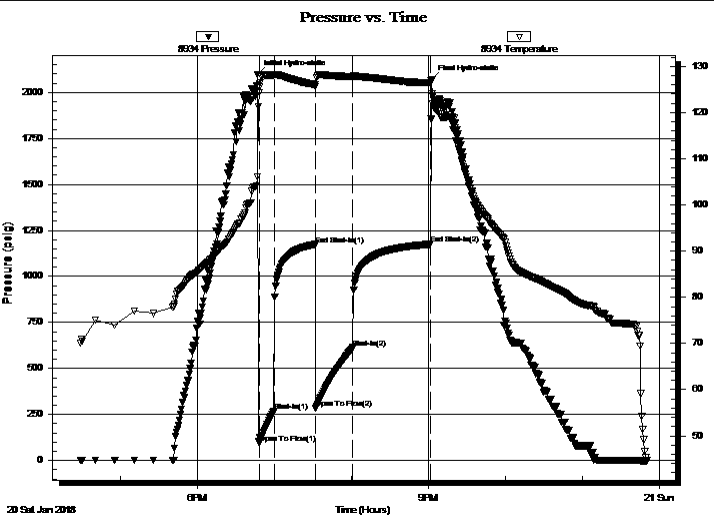
Mark Armbrister #1-27
27-13S-21W Trego,KS
Job Ticket: 63542 **DST#: 4**
Test Start: 2018.01.20 @ 16:29:00

GENERAL INFORMATION:

Formation: **Conglomerate Sand**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 18:48:15
Time Test Ended: 23:50:00
Interval: **4113.00 ft (KB) To 4120.00 ft (KB) (TVD)**
Total Depth: 4120.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair
Test Type: Conventional Bottom Hole (Reset)
Tester: Spencer J. Staab
Unit No: 84
Reference Elevations: 2367.00 ft (KB)
2359.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 8934 **Inside**
Press@RunDepth: 612.79 psig @ 4116.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2018.01.20 End Date: 2018.01.20 Last Calib.: 2018.01.20
Start Time: 16:29:15 End Time: 23:50:00 Time On Btm: 2018.01.20 @ 18:47:00
Time Off Btm: 2018.01.20 @ 21:02:45

TEST COMMENT: 15-IF-Strong Blow ; BOB(11") in 2 min
30-ISI-Weak Blow ; Built to 3/4"; died back to 1/2"
30-FF-Strong Blow ; BOB in 1 3/4 min
60-FSI-No Return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2097.89	106.09	Initial Hydro-static
2	93.81	124.31	Open To Flow (1)
13	268.39	128.07	Shut-In(1)
45	1173.96	126.06	End Shut-In(1)
45	284.47	125.62	Open To Flow (2)
75	612.79	127.77	Shut-In(2)
135	1175.29	126.45	End Shut-In(2)
136	2067.57	124.16	Final Hydro-static

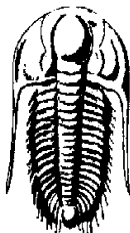
Recovery

Length (ft)	Description	Volume (bbl)
800.00	GW 10%G 90%W	10.93
400.00	MWC 15%M 85%W	5.61
225.00	WCM 10%W 90%M	3.16

Gas Rates

	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)

* Recovery from multiple tests



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

DNOC
PO Box 1019
Hays KS 67601

ATTN: Marc Downing

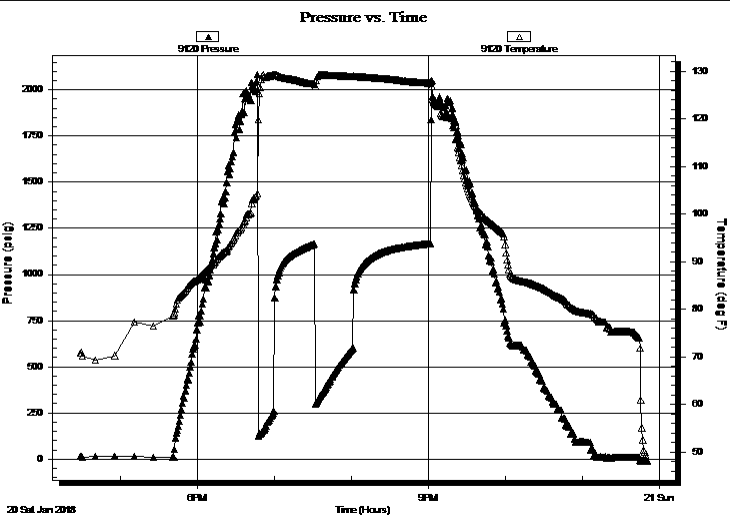
Mark Armbrister #1-27
27-13S-21W Trego,KS
Job Ticket: 63542 **DST#: 4**
Test Start: 2018.01.20 @ 16:29:00

GENERAL INFORMATION:

Formation: Conglomerate Sand	
Deviated: No Whipstock: ft (KB)	Test Type: Conventional Bottom Hole (Reset)
Time Tool Opened: 18:48:15	Tester: Spencer J. Staab
Time Test Ended: 23:50:00	Unit No: 84
Interval: 4113.00 ft (KB) To 4120.00 ft (KB) (TVD)	Reference Elevations: 2367.00 ft (KB)
Total Depth: 4120.00 ft (KB) (TVD)	2359.00 ft (CF)
Hole Diameter: 7.88 inches Hole Condition: Fair	KB to GR/CF: 8.00 ft

Serial #: 9120	Inside				
Press@RunDepth: psig @	4116.00 ft (KB)	Capacity:	8000.00 psig		
Start Date: 2018.01.20	End Date: 2018.01.20	Last Calib.:	2018.01.20		
Start Time: 16:29:15	End Time: 23:50:00	Time On Btm:			
		Time Off Btm:			

TEST COMMENT: 15-IF-Strong Blow ; BOB(11") in 2 min
30-ISI-Weak Blow ; Built to 3/4"; died back to 1/2"
30-FF-Strong Blow ; BOB in 1 3/4 min
60-FSI-No Return



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

Length (ft)	Description	Volume (bbl)
800.00	GW 10%G 90%W	10.93
400.00	MWC 15%M 85%W	5.61
225.00	WCM 10%W 90%M	3.16

* Recovery from multiple tests

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

DNOC
PO Box 1019
Hays KS 67601
ATTN: Marc Downing

Mark Armbrister #1-27
27-13S-21W Trego,KS
Job Ticket: 63542 **DST#: 4**
Test Start: 2018.01.20 @ 16:29:00

Tool Information

Drill Pipe:	Length: 4089.00 ft	Diameter: 3.80 inches	Volume: 57.36 bbl	Tool Weight:	2000.00 lb
Heavy Wt. Pipe:	Length: ft	Diameter: 2.75 inches	Volume: - bbl	Weight set on Packer:	25000.00 lb
Drill Collar:	Length: 32.00 ft	Diameter: 2.25 inches	Volume: 0.16 bbl	Weight to Pull Loose:	70000.00 lb
			<u>Total Volume: - bbl</u>	Tool Chased	ft
Drill Pipe Above KB:	28.00 ft			String Weight: Initial	60000.00 lb
Depth to Top Packer:	4113.00 ft			Final	68000.00 lb
Depth to Bottom Packer:	ft				
Interval between Packers:	7.00 ft				
Tool Length:	27.00 ft				
Number of Packers:	1	Diameter: 6.75 inches			

Tool Comments:

Tool Description	Length (ft)	Serial No.	Position	Depth (ft)	Accum. Lengths
Change Over Sub	1.00			4094.00	
Shut In Tool	5.00			4099.00	
Hydraulic tool	5.00			4104.00	
Packer	5.00			4109.00	20.00 Bottom Of Top Packer
Packer	4.00			4113.00	
Stubb	1.00			4114.00	
Perforations	2.00			4116.00	
Recorder	0.00	9120	Inside	4116.00	
Recorder	0.00	8934	Inside	4116.00	
Bullnose	4.00			4120.00	7.00 Bottom Packers & Anchor
Total Tool Length:	27.00				



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

DNOC
PO Box 1019
Hays KS 67601
ATTN: Marc Downing

Mark Armbrister #1-27
27-13S-21W Trego,KS
Job Ticket: 63542 **DST#: 4**
Test Start: 2018.01.20 @ 16:29:00

Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API:	deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	50000 ppm
Viscosity: 57.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.59 in ³	Gas Cushion Type:		
Resistivity: ohm.m	Gas Cushion Pressure: psig		
Salinity: 7500.00 ppm			
Filter Cake: inches			

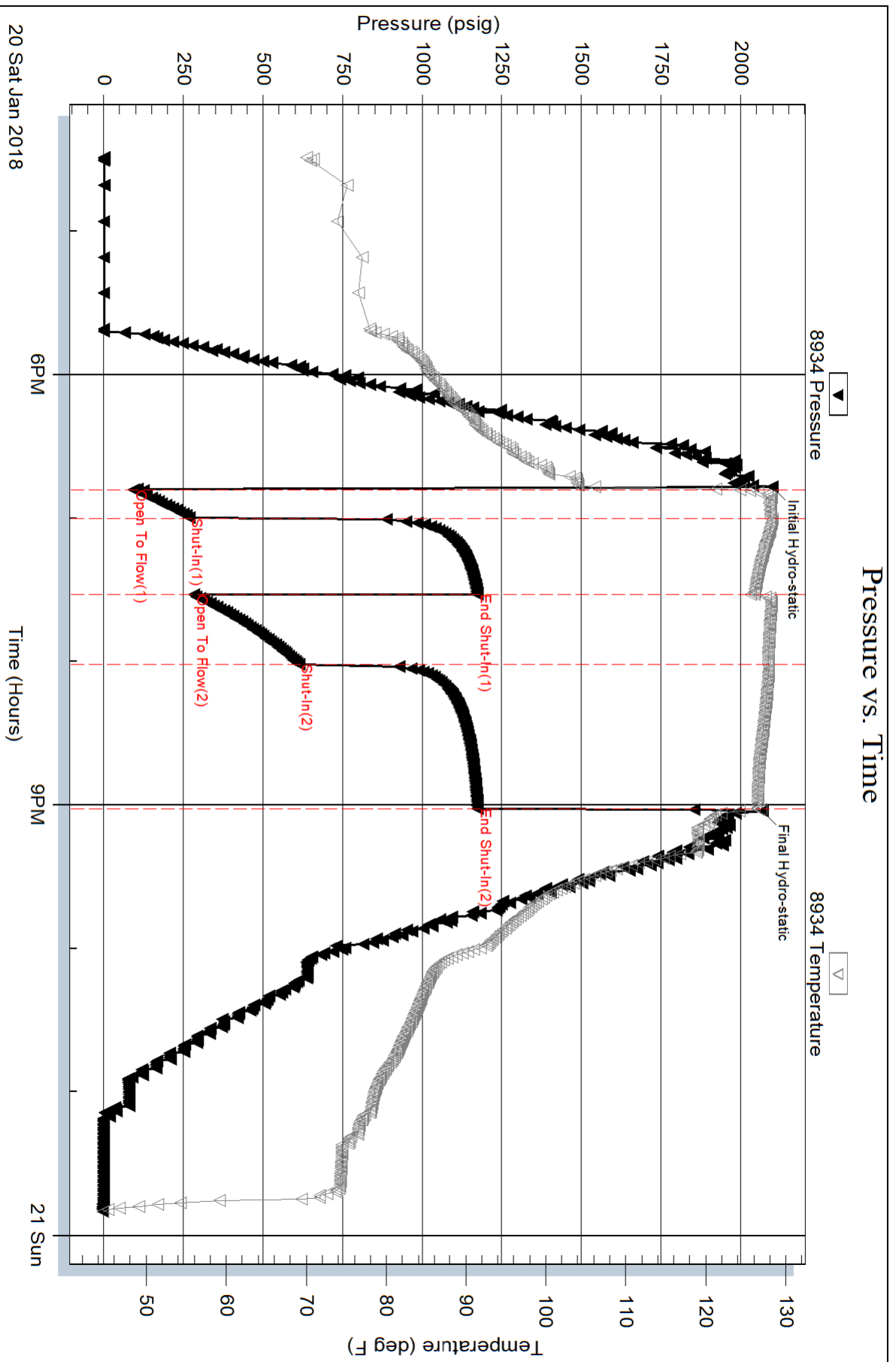
Recovery Information

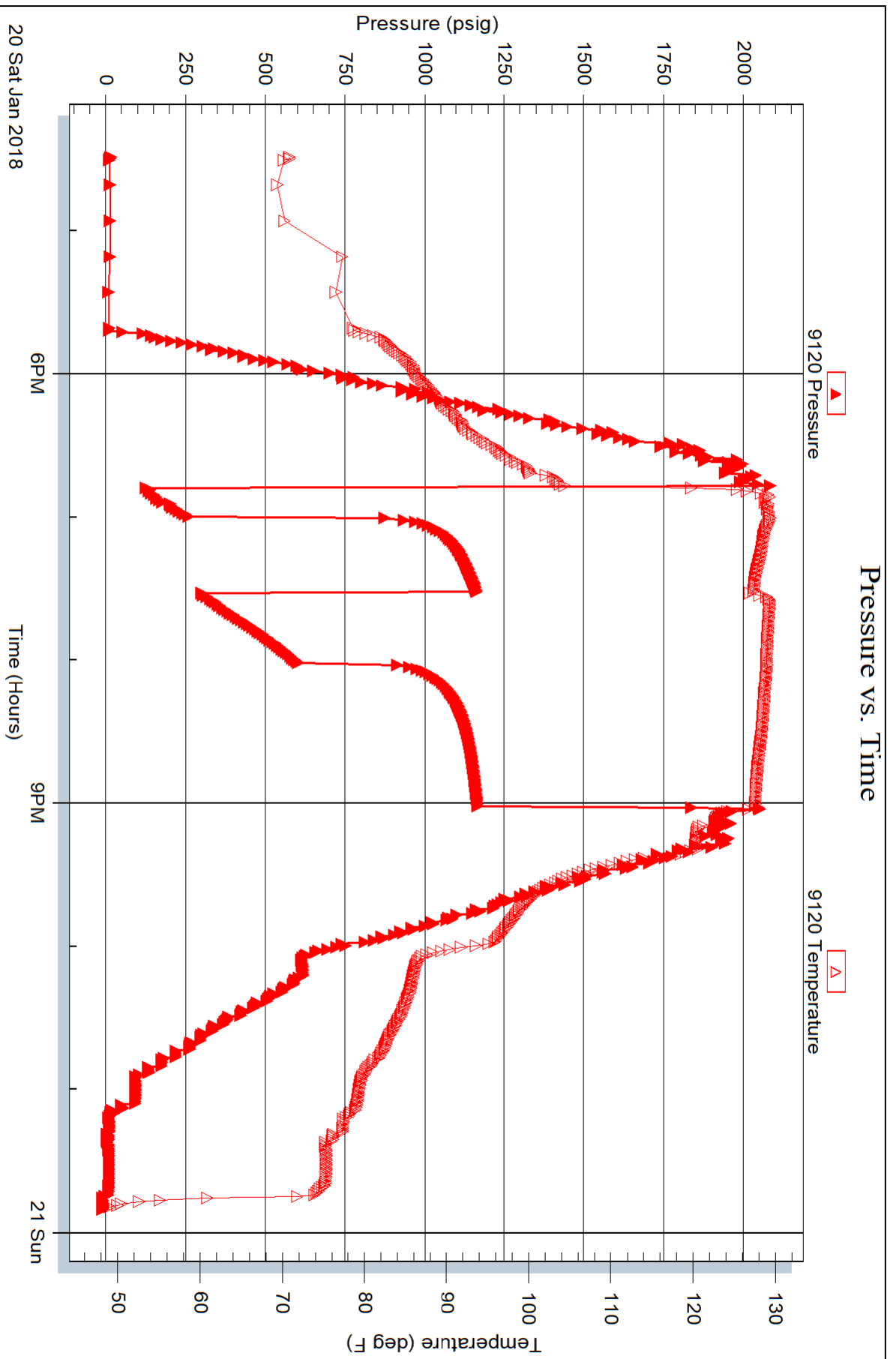
Recovery Table

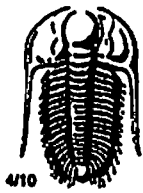
Length ft	Description	Volume bbl
800.00	GW 10%G 90%W	10.930
400.00	MWC 15%M 85%W	5.611
225.00	WCM 10%W 90%M	3.156

Total Length: 1425.00 ft Total Volume: 19.697 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments: 1/2#LCM
 RW=.296@36degrees

Pressure vs. Time







TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63539

Well Name & No. Mark Armbrister #1-27 Test No. 1 Date 02/18/2018
 Company DNOC Elevation 2367 KB 2359 GL
 Address PO BOX 1019 Hays, Mo 67601
 Co. Rep / Geo. Marc Downing Rig Discovery #4
 Location: Sec. 27 Twp 13S Rge. 2W Co. Trego State Mo

Interval Tested 3767'-3784' Zone Tested LRC 'E'
 Anchor Length 17' Drill Pipe Run 3740' Mud Wt. 8.8
 Top Packer Depth 3762' Drill Collars Run 32' Vis 51
 Bottom Packer Depth 3767' Wt. Pipe Run - WL 7.2
 Total Depth 3784' Chlorides 6500 ppm System LCM 1/2#

Blow Description 17-Weak Blow; Built to 1"
1SD - No Return

77-Weak Surface Blow

7SD - No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>10'</u>	<u>Mud</u>			<u>100</u>	
	<u>Oil spots on top of tool</u>				

Rec Total 10' BHT 101° Gravity - API RW - @ - °F Chlorides - ppm

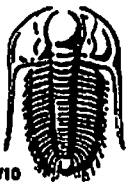
(A) Initial Hydrostatic 1805 Test 1050 T-On Location 10:15
 (B) First Initial Flow 14 Jars _____ T-Started 10:41
 (C) First Final Flow 15 Safety Joint _____ T-Open 13:26
 (D) Initial Shut-In 515 Circ Sub _____ T-Pulled 15:26
 (E) Second Initial Flow 16 Hourly Standby _____ T-Out 16:56
 (F) Second Final Flow 17 Mileage 57 RM 42.75
 (G) Final Shut-In 506 Sampler _____
 (H) Final Hydrostatic 1796 Straddle _____

Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 Initial Open 30
 Initial Shut-In 30
 Final Flow 30
 Final Shut-In 30
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____
 Sub Total 1092.75
 Sub Total 1092.75
 Total 1092.75
 MP/DST Disc't _____

Approved By _____ Our Representative Spencer J. Stahl Thanks

Trilobite Testing Inc. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.

785-259-0056



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63540

Well Name & No. Mark Armbrister #1-27 Test No. 2 Date 01/19/2018
 Company SNOCJ Elevation 2367 KB 2359 GL
 Address PO BOX 1019 Hays KS 67601
 Co. Rep / Geo. Marc Downing Rig Discovery #4
 Location: Sec. 27 Twp 13N Rge. Rur Co. Trego State Ks

Interval Tested 4030' - 4060' Zone Tested Marmaton
 Anchor Length 30' Drill Pipe Run 3993' Mud Wt. 9.1
 Top Packer Depth 4025' Drill Collars Run 32' Vis 57
 Bottom Packer Depth 4030' Wt. Pipe Run - WL 7.6
 Total Depth 4060' Chlorides 7500 ppm System LCM 1/2#

Blow Description 17-Weak Blow, Built to 1"

138- No Return

77- No Blow

78- No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>10'</u>	<u>OSM</u>			<u>100</u>	
<u>0'</u>	<u>Oil on top of tool</u>				

Rec Total 10' BHT 108° Gravity - API RW - @ - °F Chlorides - ppm

(A) Initial Hydrostatic 1991 Test 1150 T-On Location 13:48
 (B) First Initial Flow 11 Jars _____ T-Started 14:18
 (C) First Final Flow 15 Safety Joint _____ T-Open 16:12
 (D) Initial Shut-In 852 Circ Sub _____ T-Pulled 18:12
 (E) Second Initial Flow 17 Hourly Standby _____ T-Out 19:52
 (F) Second Final Flow 20 Mileage 57 RT 42.75 Comments _____
 (G) Final Shut-In 557 Sampler _____
 (H) Final Hydrostatic 1964 Straddle _____ Ruined Shale Packer _____

Initial Open 30 Shale Packer _____ Ruined Packer _____
 Initial Shut-In 30 Extra Packer _____ Extra Copies _____
 Final Flow 30 Extra Recorder _____ Sub Total 0
 Final Shut-In 30 Day Standby _____ Total 1192.75
 Accessibility _____ MP/DST Disc't _____
 Sub Total 1192.75

Approved By _____ Our Representative Spencer J. Paul Thanks!

Triobite Testing Inc. shall not be liable for damaged of any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.

7852590056



TRIOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63541

Well Name & No. Mark Ambrister # 1-27 Test No. 3 Date 01/20/2018
 Company MCO Elevation 2367 KB 2359 GL
 Address PO BOX 1019 Hays KS 67601
 Co. Rep / Geo. Marc Downing Flg Discovery #4
 Location: Sec. 27 Twp 13S Rge. 2W Co. Trego State KS

Interval Tested 4057' - 4107' Zone Tested Cherokee Ss
 Anchor Length 50' Drill Pipe Run 4024' Mud Wt. 9.1
 Top Packer Depth 4052' Drill Collars Run 32' Vls 57
 Bottom Packer Depth 4057' Wt. Pipe Run - WL 7.6
 Total Depth 4107' Chlorides 7,500 ppm System LCM 1/2#

Blow Description 7- Strong Blow; BOB (11") in 2:30

1SD- Fair Blow; Built to 4"

77- Strong Blow; BOB in 3 mins

7SD- Weak Blow; Built to 1"; died back to surface

Rec	Feet of	%gas	%oil	%water	%mud
<u>630'</u>	<u>110'</u>	<u>20</u>	<u>80</u>		
<u>370'</u>	<u>MCO</u>	<u>20</u>	<u>65</u>	<u>15</u>	
	<u>210' M-P</u>	<u>100</u>			

Rec Total 1000' BHT 121° Gravity 31° API RW - @ - ° F Chlorides - ppm

(A) Initial Hydrostatic 2017

(B) First Initial Flow 54

(C) First Final Flow 169

(D) Initial Shut-In 1129

(E) Second Initial Flow 179

(F) Second Final Flow 362

(G) Final Shut-In 1075

(H) Final Hydrostatic 1979

Initial Open 15

Initial Shut-In 30

Final Flow 30

Final Shut-In 60

Test 1150

Jars

Safety Joint

Circ Sub

Hourly Standby

Mileage 57R7 42.75

Sampler

Straddle

Shale Packer

Extra Packer

Extra Recorder

Day Standby

Accessibility

Sub Total 1192.75

T-On Location 03:27

T-Started 03:47

T-Open 06:01

T-Pulled 08:16

T-Out 10:35

Comments

Ruined Shale Packer

Ruined Packer

Extra Copies

Sub Total 0

Total 1192.75

MP/DST Disc't

Approved By _____

Our Representative Spencer J. Ansel Thanks!

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785-259-0056



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 63542

Well Name & No. Mark Ambrister #1-27 Test No. 4 Date 01/20/2018
 Company MOCD Elevation 2367 KB 2359 GL
 Address PO BOX 1019 Hays KS 67601
 Co. Rep / Geo. Marc Downing Rig Discovery #4
 Location: Sec. 27 Twp 13s Rge. 2W Co. Trego State KS

Interval Tested 4113' - 4120' Zone Tested Cong Ss
 Anchor Length 7' Drill Pipe Run 4089' Mud Wt. 9.2
 Top Packer Depth 4108' Drill Collars Run 32' Vis 57
 Bottom Packer Depth 4113' Wt. Pipe Run - WL 7.6
 Total Depth 4120' Chlorides 7,500 ppm System LCM 1/2#

Blow Description 77- Strong Blow; BOB (11") in 2:00
1st - Weak Blow; Built to 3/4"; died back to 1/2"
77- Strong Blow; BOB in 1:45
78- No Return

Rec	Feet of	%gas	%oil	%water	%mud
<u>800'</u>	<u>29W</u>	<u>10</u>	<u>90</u>		
<u>400'</u>	<u>MCW</u>		<u>8.5</u>	<u>15</u>	
<u>225'</u>	<u>WCM</u>		<u>10</u>	<u>90</u>	

Rec Total 1425' BHT 126° Gravity - API RW 296 @ 36 °F Chlorides 50,000 ppm

(A) Initial Hydrostatic 2097 Test 1150 T-On Location 16:05
 (B) First Initial Flow 93 Jars _____ T-Started 16:29
 (C) First Final Flow 268 Safety Joint _____ T-Open 18:46
 (D) Initial Shut-In 1173 Circ Sub _____ T-Pulled 21:00
 (E) Second Initial Flow 284 Hourly Standby _____ T-Out 23:48
 (F) Second Final Flow 612 Mileage 57R7 42.75 Comments _____
 (G) Final Shut-In 1175 Sampler _____
 (H) Final Hydrostatic 2067 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____

Initial Open 15
 Initial Shut-In 30
 Final Flow 30
 Final Shut-In 60
 Sub Total 1192.75
 Total 1192.75
 MP/DST Disc't _____

Approved By _____ Our Representative Spencer J. Strub Thanks!
 TriLOBITE TESTING INC. shall not be liable for damaged or any kind of the property or personnel of the one for whom a test is made, or for any loss suffered or sustained, directly or indirectly, through the use of its equipment, or its statements or opinion concerning the results of any test, tools lost or damaged in the hole shall be paid for at cost by the party for whom the test is made.

785-259-0056

QUALITY OILWELL CEMENTING, INC.

Federal Tax I.D.# 20-2886107

Phone 785-483-2025
Cell 785-324-1041

Home Office P.O. Box 32 Russell, KS 67665

No. 584

Date	1-13-18	Sec.	27	Twp.	13	Range	21	County	Lea Lea	State	KS	On Location		Finish	10:15pm
Lease	Mark ARMBRISTER		Well No.		1-27		Location Riga 5 1/2 S Rinto								
Contractor	Discovery #4		Owner		To Quality Oilwell Cementing, Inc. You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed.										
Type Job	Surface		Charge To		Downing/Nelson										
Hole Size	12 1/4		T.D.		222										
Csg.	8 5/8		Depth		221										
Tbg. Size			Depth												
Tool			Depth												
Cement Left in Csg.	10		Shoe Joint		The above was done to satisfaction and supervision of owner agent or contractor.										
Meas Line			Displace		13BL										
EQUIPMENT															
Pumptrk	16	No.	Cement	3		Common		120							
Bulktrk		No.	Helper	5		Poz. Mix		30							
Bulktrk	9	No.	Driver	5		Gel.		3							
Bulktrk		No.	Driver	Jordan		Calcium		6							
JOB SERVICES & REMARKS															
Remarks:													Hulls		
Rat Hole													Salt		
Mouse Hole													Flowseal		
Centralizers													Kol-Seal		
Baskets													Mud CLR 48		
D/V or Port Collar													CFL-117 or CD110 CAF 38		
8 5/8 on bottom Est. Circulation Mix 150SR + Displacer													Sand		
Cement Overlaid!													Handling 139		
													Mileage		
													FLOAT EQUIPMENT		
													Guide Shoe		
													Centralizer		
													Baskets		
													AFU Inserts		
													Float Shoe		
													Latch Down		
													Pumptrk Charge Surface		
													Mileage 27		
X Signature Don D. Miller													Tax		
													Discount		
													Total Charge		

LOG

SWIFT Services, Inc.

DATE

01/21/18

PAGE NO.

1

CUSTOMER

Dunnington Nelson

WELL NO.

1-27

LEASE

Mark Armbrister

JOB TYPE

Cement 2 Stage L.S.

TICKET NO.

30847

CHART NO.	TIME	RATE (BPM)	VOLUME (BBL) (GAL)	PUMPS		PRESSURE (PSI)		DESCRIPTION OF OPERATION AND MATERIALS
				T	C	TUBING	CASING	
	1900							On location w/Float Equipment
								5 1/2 x 15.5# Casing
								Total Pipe - 4241.04'
								Insert - 4198.56'
								RTD - 4245'
								Centralizers - 1, 3, 5, 7, 9, 11, 62
								Basket on Bottom of #63
								D.V. Tool on top of #63 @ 1694'
	2035							Start Running Casing w/Float Equip
	2245							Break Circulation on Bottom
	2350	5	12			400		Pump Mud flush
		5	20			400		Pump KCL Spacer
	2355					400		Start Cmt - 150 SKS EA-2 @ 15.5ppg
	0020	3	36			200		Fin Cmt, Drop 1st Plug, Washout P/L
	0025	6				Vac		Start Displacement
			75			600		Catch Cmt
	0045	5	100			800		Land Plug Lift 800 Land 1500
								Drop D.V. Bomb
	0055	2	8					Plug Rathole - 30 SKS SMD
	0105	2	5					Plug Mousehole - 15 SKS SMD
						900		Open D.V. Tool
	0110	4				200		Start Cmt - 155 SKS SMD
	0130	4	85			300		Fin Cmt
	0135							Drop Plug Washout P/L
								Start Disp
	0145		40			600		Fin Disp Lift 600 Land 1350
	0150							Release, Dry
								Wash up truck
	0200							Rack up
								Job Complete
								Thanks
								Jon, Austin, Isaac
								Circulate 30 SKS to pit.